

Response to Amendment***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13-26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Tomisawa et al. WO97/09567.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomisawa in view of Boucard et al. (US2007/0209625). Tomisawa discloses a detector that includes a pressure sensor (2) which is provided in a glow plug (3) with the sensor held between the ceramic heater portion (4) of the glow plug (3) and the fixing member (6) by which the ceramic heater portion (4) is fixed. Therefore, since the pressure sensor (2) directly detects the displacement of the ceramic heater portion (4), which is displaced by the inner

pressure received of a cylinder, and thereby detects the inner pressure of the cylinder, the detecting accuracy can be improved greatly as compared with that of a conventional detector of this kind which is adapted to detect the elastic deformation of a cylinder head and thereby indirectly determine the inner pressure of a cylinder. The cylinder inner pressure detector has simple construction and high operation efficiency and is capable of saving space and detecting inner pressure of cylinder with high accuracy. Since pressure sensor (2) is provided inside glow plug(3), space can be saved, and lead wire is not exposed to outside of the glow plug, enabling operation efficiency to be improved, and breaking of wire to be prevented. Tomisawa does not explicitly show a piezoelectric sensor. Boucard discloses an advantageous embodiment that provides a sensor comprising a piezoelectric member mounted between two contact members, and in that the piezoelectric member has an annular form having a flat on its periphery. This solution makes it possible to optimize the surface of the pressure sensor without having to modify the wall of the housing receiving the pressure sensor. In this embodiment, the piezoelectric member and the contact members are for example arranged substantially transversally in the tubular member; the contact members each have a connection tab at their periphery extending substantially longitudinally with respect to the tubular member, and the connection tabs are arranged in front of the flat of the piezoelectric member. It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use a piezoelectric sensor as taught by

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Boucard with the device of Tomisawa so as to increase the accuracy and to monitor variations in pressure.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ludwig, Last, Yamada, Tomita and Ludwig'003 are cited to show structure similar to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL L. ROBINSON whose telephone number is (571)272-4788. The examiner can normally be reached on m-f 5:30-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu B Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dlr
/Daniel L Robinson/
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